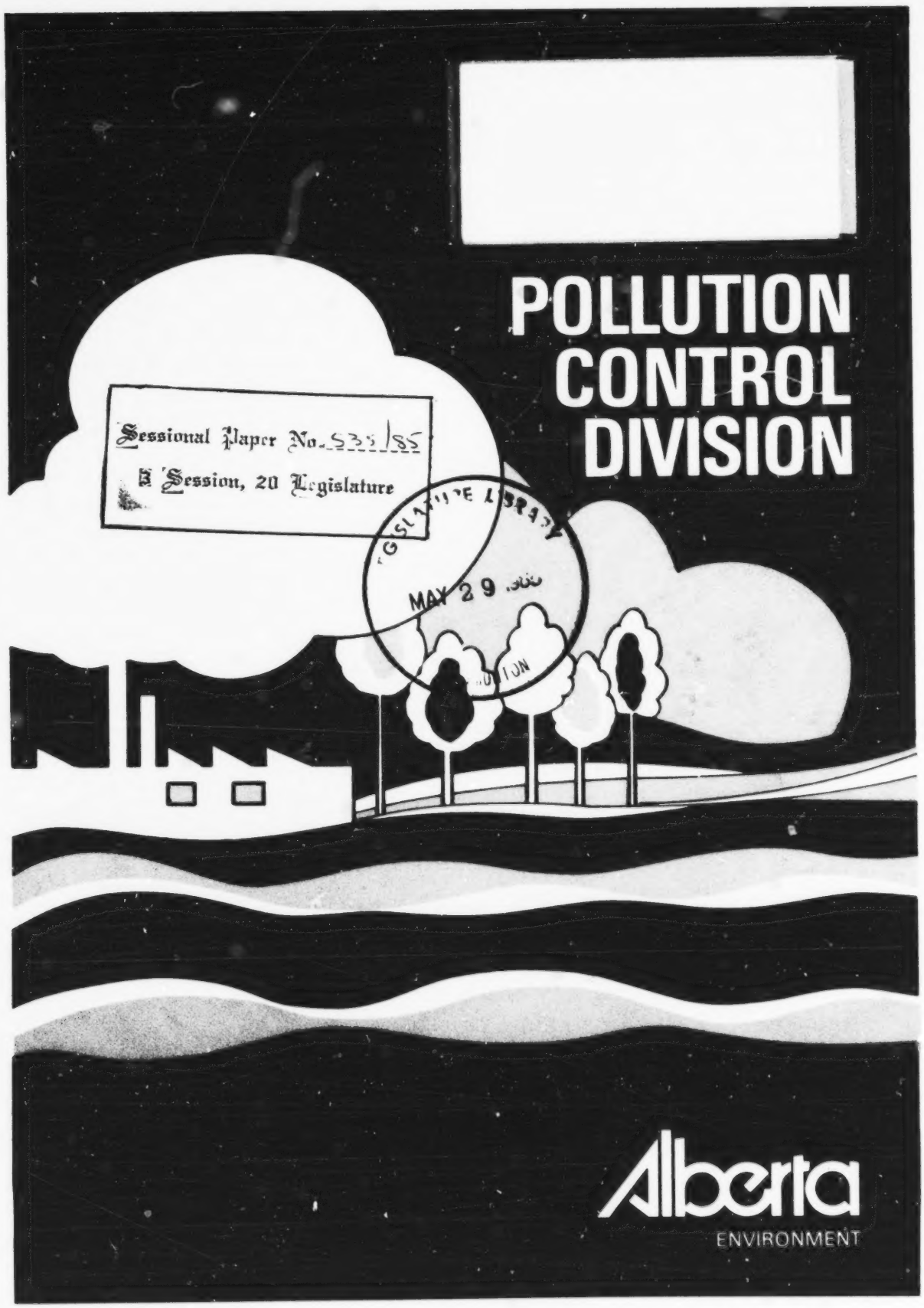

POLLUTION
CONTROL
DIVISION
Sessional Paper No. 535/85
2 Session, 20 Legislature
MAY 29
Alberta
ENVIRONMENT

NISKU INDUSTRIAL PARK
PCB STORAGE FACILITY
SAMPLING PROGRAM

Waste Management Branch
Pollution Control Division
Environmental Protection Service
Alberta Environment

May, 1985

INTRODUCTION

As a follow-up to the January 13, 1983 sampling run for PCB's at Nisku and along the Blackmud Creek drainage, a new sampling program was initiated to provide a basis on which to make comparisons on PCB concentrations in the sampling area over a two year period. The results presented in this document may be further augmented by the inclusion of data obtained on a regular sampling basis throughout the last two years. Regular sampling of soil, surface water and groundwater (for PCB and chlorinated pesticides) did not yield results in excess of the federal standard of 50ppm and, in fact, most results indicate concentrations (if present) of less than detectable levels (analysis performed by gas chromatography/mass-spectroscopy).

The samples were taken during the period April 30 to May 2, 1985 and were obtained at the original 1983 sites and numbered according to the 1983 sample sites. The only departures from the 1983 methodology were the inability to obtain ice samples, and the inclusion of several water samples taken from previously unsampled sites.

The purpose of the sampling and analysis was to determine whether there was PCB contamination and leakage from the Kinetic site. PCB's are non-reactive stable substances which have been used as electric transformer coolant fluids. They are persistant in the environment and must be controlled in use and disposal.

Canadian government guidelines set 50 parts per million (ppm) and above as the level for PCB contamination. Any material with less than five ppm is considered free of PCB's for all purposes except human consumption.

In Alberta, the storage and handling of hazardous chemicals such as PCB's are governed by the Hazardous Chemicals Act. The Act gives the Minister of Environment the authority to take whatever action is necessary to ensure proper handling, storage and disposal of hazardous chemicals. Under the legislation, Alberta Environment may issue a control order to a company if there is evidence of improper procedures. A control order would require a company to clean up contaminated areas and improve procedures and/or facilities.

METHODOLOGY

Site sampling was carried out by Waste Management Branch staff over a three-day period. Sampling technique and site locations were identical to those of 1983 to provide consistency between the two sampling runs (1983 and 1985).

Sediment samples were obtained by placing 50-200 grams of material into a clean, labelled 500ml, amber jar. All pertinent data were recorded on the sample sheets. Surface-water samples were collected in solvent-rinsed 1 litre amber bottles, and data were recorded in the same fashion as for the sediment samples.

Background levels for PCB were obtained by sampling upstream of the Kinetic facility. The heaviest concentration of sampling activity was along the ditch running adjacent to the eastern property line of the facility. In addition, asphalt samples were obtained from within the property, as were three groundwater samples. Ice in the two remaining observation wells precluded sampling at those stations at the present time.

All samples were submitted to the chemistry section of the Alberta Environmental Centre, Vegreville for subsequent analysis. Sample number, type, location and reason for sampling are included in Table I, and Figures I, II, III.

RESULTS

The four categories of samples obtained included:

1) Surface Water Samples: 16, 17, 19, 20, 21, 32, 32A, 35, 36, 37, 38, 41
2) Sediment (soil) Samples: 1...7, 9...15, 18, 22, 23, 24, 26...31
3) Groundwater (Kinetic site for chlorinated pesticides and PCB's): Well #2, Well #3, Well #5
4) Asphalt (from within Kinetic property): 7, 9, 31, 39, 40

The onsite asphalt samples taken at the Kinetic facility ranged from 7.57 ppm to 1630 ppm (Sample #31).

TABLE I

SAMPLE #	TYPE	SAMPLE LOCATION	REASON FOR SAMPLING
1	sediment	ditch upstream from KERG	establish local background levels
2	- " -	ditch in front of KERG	check for contamination
3	- " -	- " -	- " -
4	- " -	- " -	- " -
5	- " -	- " -	- " -
6	- " -	ditch upstream from road	establish local background culver levels
7	asphalt	KERG yard in front of	check for PCB contamination in yard
8	- " -	Site no longer exists	
9	asphalt	KERG yard at north gate	- " -
10	sediment	culvert under road	check for stormwater system contamination
11	sediment	north drainage ditch	- " -
12	sediment	- " -	- " -
13	- " -	main drainage ditch	- " -
14	- " -	stormwater runoff pond inlet	- " -
15	- " -	stormwater runoff pond outlet	- " -
16	water	Blackmud Creek & Hwy. 6625	check for drainage system contamination
17	- " -	Whitemud Creek downstream	- " -
18	sediment	from confluence with Blackmud	- " -
19	water	Blackmud upstream from confluence	- " -
20	- " -	Whitemud upstream from confluence	establish background levels
21	- " -	NSR downstream from confluence	check for water contamination
22	soil	D & D yard back fence	check for contamination
23	sediment	upstream from D & D yard	establish background levels
24	- " -	downstream from D & D yard	check for contamination
25		Site no longer exists	
26	sediment	south end, second culvert	- " -
27	- " -	north end, second culvert	- " -
28	- " -	south end, third culvert	- " -
29	- " -	north end, third culvert	- " -
30	- " -	ditch in front of KERG	check for contamination and as a control for lab
31	asphalt	west side of yard	check for contamination
32	water	Nisku Park lagoon	- " -
32A	- " -	- " -	- " -
33)	Not		
34)	Duplicated		
35	water	stormwater runoff pond, Nisku	check for contamination
36	- " -	ditch in front of KERG	check for contamination
37	- " -	below bridge on Blackmud Creek and Airport Road	establish background levels
38	- " -	D & D north ditch, east end of culvert	check for contamination
39	asphalt	KERG yard near liquid storage area	check for contamination
40	- " -	KERG yard along west fence	check for contamination
41	water	from ditch by south east corner, D & D yard	check for contamination

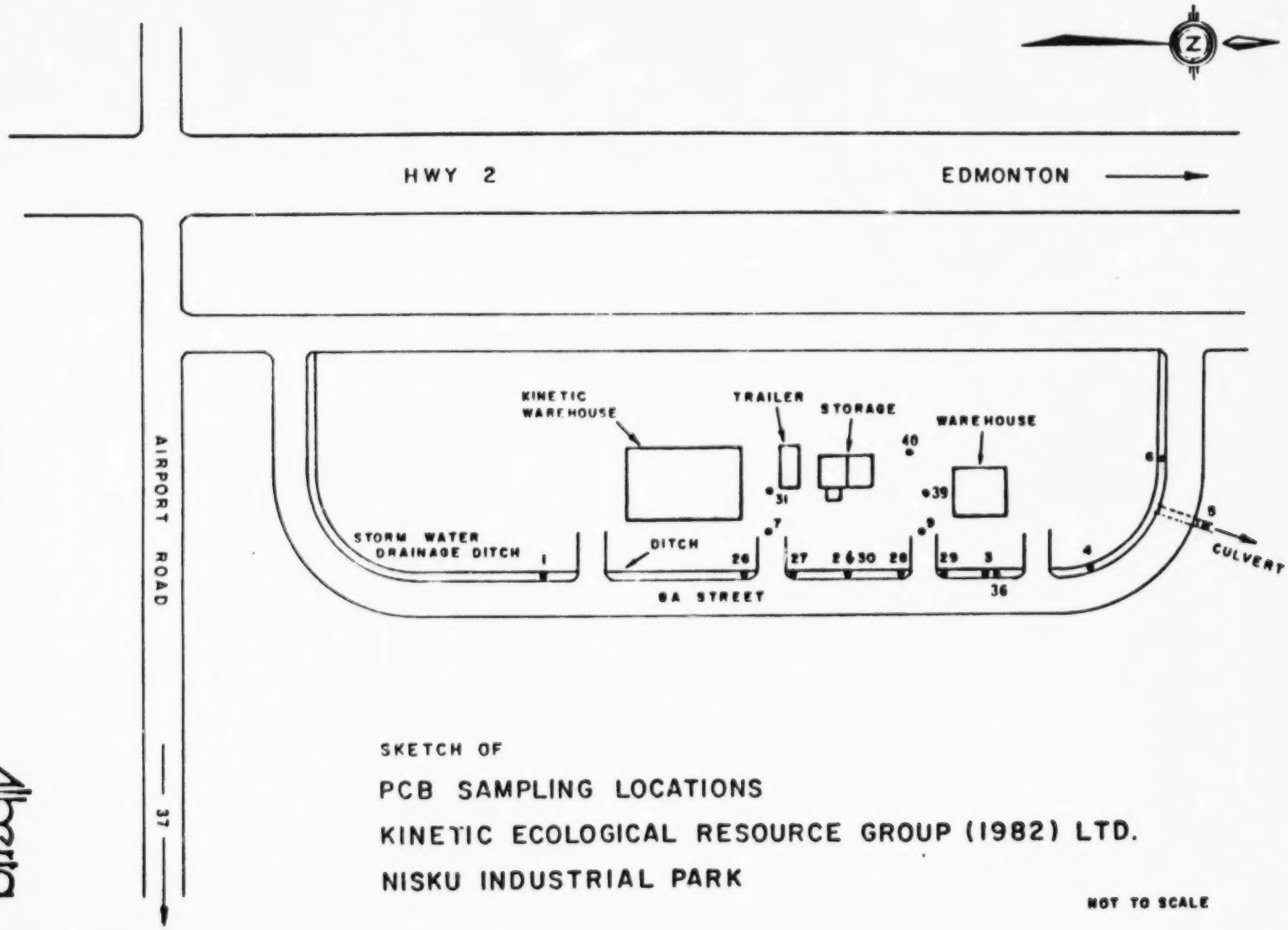


FIGURE 1

SKETCH OF

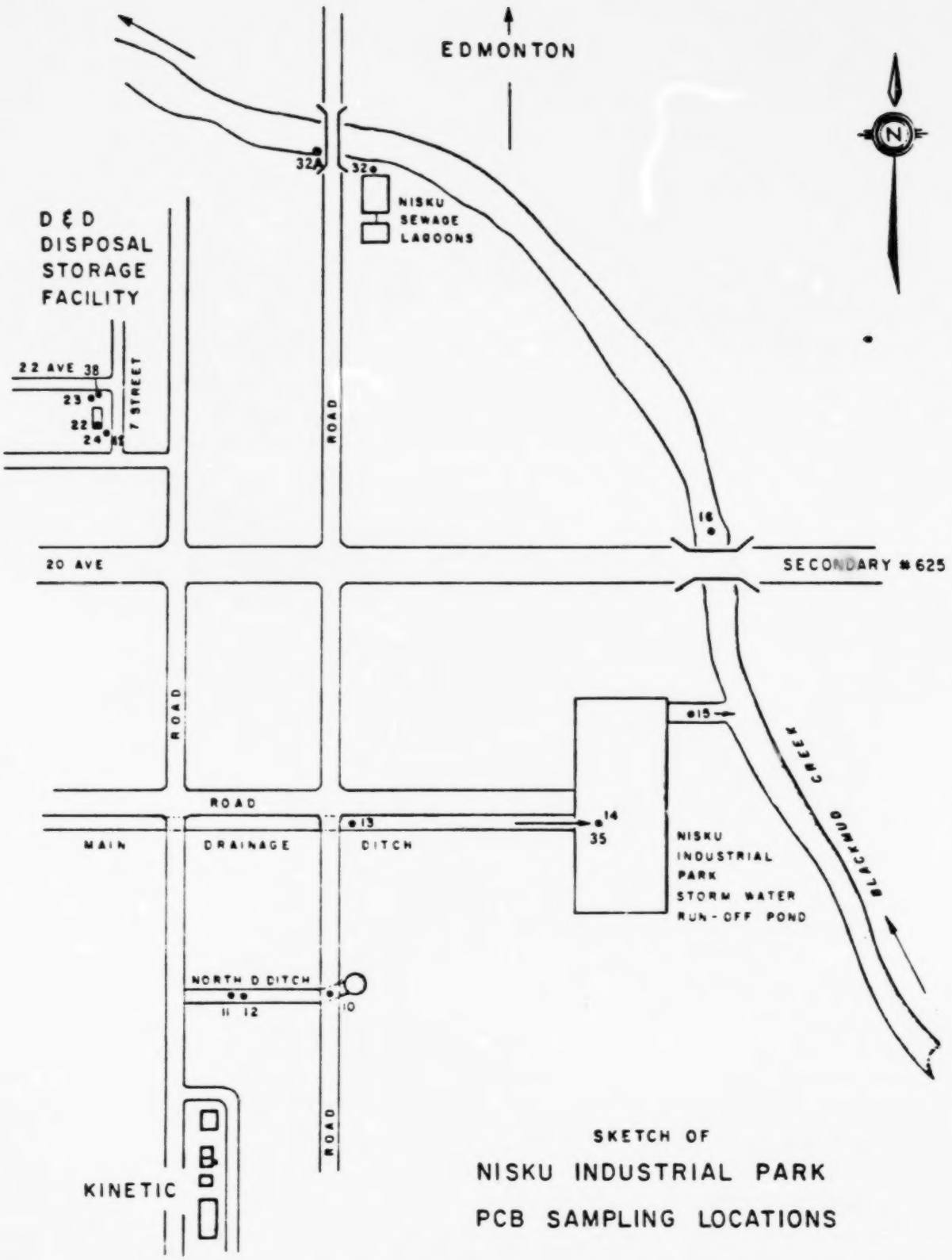
PCB SAMPLING LOCATIONS

KINETIC ECOLOGICAL RESOURCE GROUP (1982) LTD.

NISKU INDUSTRIAL PARK

NOT TO SCALE

Alberta
ENVIRONMENT
Pollution Control Division
Waste Management Branch



SKETCH OF

NISKU INDUSTRIAL PARK

PCB SAMPLING LOCATIONS

NOT TO SCALE

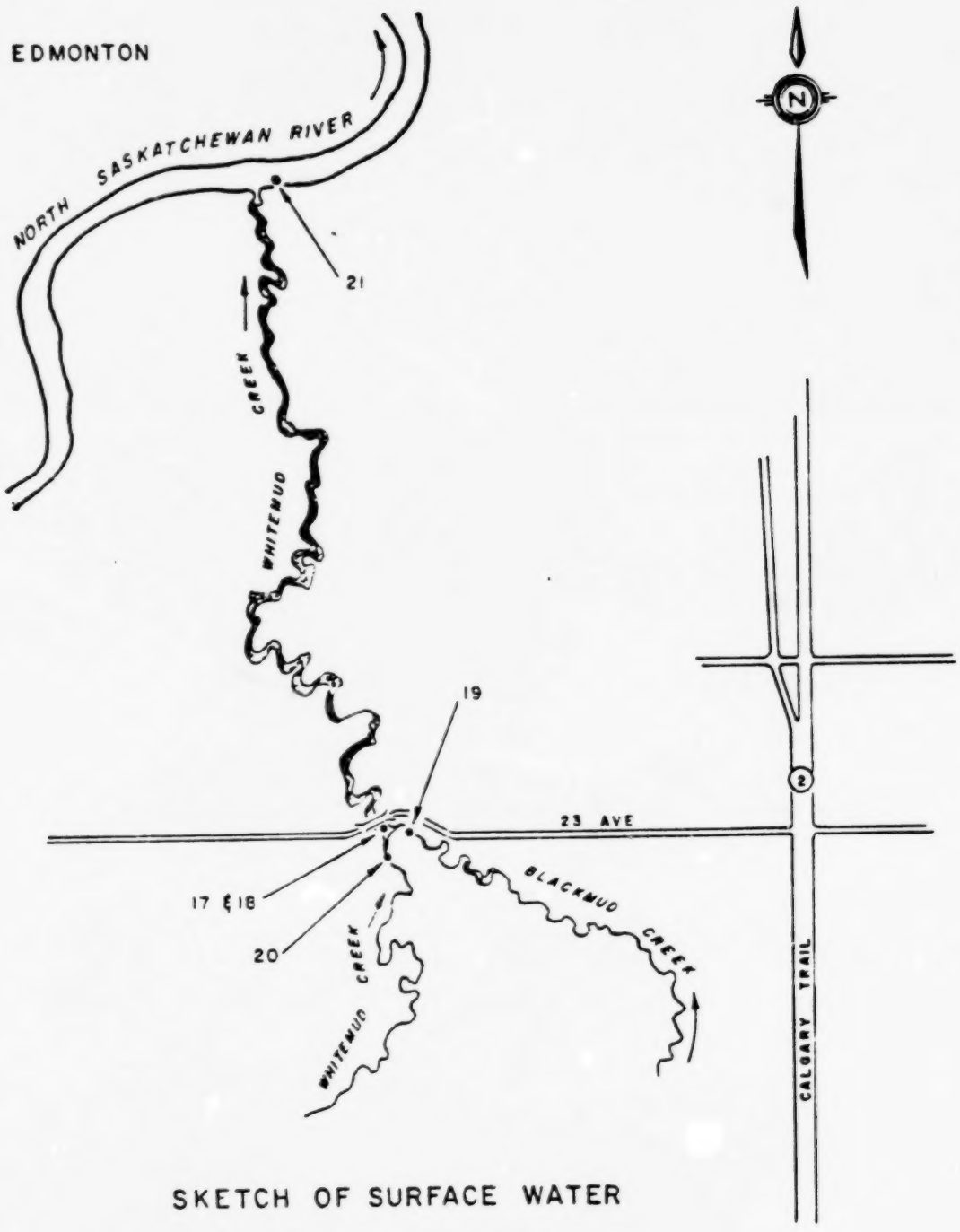
FIGURE II

Alberta

ENVIRONMENT

Pollution Control Division

Waste Management Branch



SKETCH OF SURFACE WATER

SAMPLING LOCATIONS

NOT TO SCALE

FIGURE III

Alberta
ENVIRONMENT
Pollution Control Division
Waste Management Branch

The site of sample #31 was on asphalt of an approximate area of 20 square centimetres. Sample #39 (213.0ppm) was obtained from a patch of broken asphalt to the south of the liquid storage warehouse. The three remaining asphalt samples exhibited contamination levels below the 50ppm limit for PCB contamination established by the Federal Government.

Of the twenty-one sediment samples collected, only one exhibited levels in excess of the 50ppm Federal limit. Sample #29, situated below a culvert outfall, had a PCB content of 65.7ppm. A sediment sample obtained from the D & D site presented the second-highest concentration of PCB at 43.3ppm. All remaining sediment samples exhibited concentrations well below the Federal 50ppm limit, or PCB was not detected (lower detection limit: <0.05 ppm.

All surface water samples exhibited levels below the detection limit except for three samples; sample #36 was determined to contain 17.8 ug/l (parts per billion), sample #41 contained 0.3 ug/l (parts per billion) and sample #17 contained 0.3 ug/l (parts per billion). The PCB present in these samples is characteristic of Aroclor 1260.

For all groundwater samples, PCB and chlorinated pesticides (diallate, triallate and trifluralin) were not detected.

CONCLUSION

Levels of PCB contamination within the Kinetic compound presented the highest concentrations of the target substance (Table II).

It is entirely likely that the samples of particular concern are indicative of highly localized PCB concentration and can easily be rectified with clean-up measures such as simple removal of contaminated material, which may be stored on site.

Sediment sample #29 (65.7ppm), indicates the need for some soil recovery below the culvert outfall at site 29. Removal and storage of the soil, as well as follow-up sampling, will be required to reduce PCB levels below the 50ppm Federal limit.

TABLE II

April 30 - May 2, 1985

SAMPLE #	TYPE	RESULTS (PARTS PER MILLION)
1	sediment	0.18
2	sediment	4.03
3	sediment	2.80
4	sediment	3.00
5	sediment	0.11
6	sediment	N.D.*
7	asphalt	28.2
8	Site no longer exists	
9	asphalt	7.57
10	sediment	0.10
11	sediment	N.D.*
12	sediment	0.05
13	sediment	0.11
14	sediment	N.D.*
15	sediment	0.05
16	water	N.D.*
17	water	0.0003
18	sediment	0.10
19	water	N.D.*
20	water	N.D.*
21	water	N.D.*
22	sediment	43.3
23	sediment	0.20
24	sediment	0.34
25	Site no longer exists	
26	sediment	N.D.*
27	sediment	5.00
28	sediment	8.78
29	sediment	65.7
30	sediment	32.1
31	asphalt	1630.0
32	water	N.D.*
32A	water	N.D.*
33) Not		
34) Duplicated		
35	water	N.D.*
36	water	0.0178
37	water	N.D.*
38	water	N.D.*
39	asphalt	213.0
40	asphalt	6.57
41	water	0.0003

*N.D.: Not detected at a detection level of 0.05 parts per million (soil and sediment).
Not detected at a detection level of 0.00005 parts per million (water)

All water samples (surface and groundwater) except for 3 were determined to be PCB-free at the detection limit of 0.05ppb. The highest concentration indicated (sample #36) was 17.8 ug/l (parts per billion) and as such, falls far below any level of concern.

Therefore, with the exception of two asphalt and one sediment samples, the PCB content for ALL remaining samples was below the Federal limit of 50ppm (Table II). The areas of concern are highly localized and lie within (2 asphalt) or immediately adjacent (1 sediment) to the Kinetic property. Mitigative measures are straightforward and can be implemented immediately.

The Waste Management Branch, Pollution Control Division will continue to monitor the site to ensure site security.

JS/clh
1022M

APPENDIX I

Results of Chemical Analysis
for Samples Obtained April 30 - May 2, 1985

T518 078

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

(IMPORTANT see reverse side for sample requirements)

Results to ... TOM TRIBBLE ..... WASTE MGMT CC .....
(name)

4TH AVE CHIPMAN ALTA ..... 927-5868 .....
(address) (telephone)

Sample Type

Ground Water	Soil		Plant
Surface Water	Sediment X		Biota
Industrial Effluent	Sludge		Other

Program Project ..... Is this for human consumption? .....

Sampling Location SAMPLE #1 .....
CCA AT MISL .....

Date Sampled APR - 30/85 ..... Sampled by TT - JS .....

Analysis Required (please specify) PCB .....

(To be completed by Methods Development and Research Services Section)

Date Received ..... Received by ..... Sample No .....

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-078 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE SEDIMENT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	0.18 µg/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 079

Alberta ENVIRONMENTAL CENTRE

BAG 4000 VEGREVILLE, ALBERTA T0B 4L0

Chemical Analysis Request

Methods Development and Research Services Section

(IMPORTANT: see reverse side for sample requirements)

Results to T. Trimble (name) W.R.E.S.

4th Fl. Cambridge (address) 7-5868 (telephone)

Sample Type

Ground Water		Soil	Plant
Surface Water		Sediment ✓	Biota
Industrial Effluent		Sludge	Other

Program Project Is this for human consumption? N/O

Sampling Location Edmonton

Date Sampled May 1, 1985 Sampled by T.T. HP

Analysis Required (please specify) PCB

(To be completed by Methods Development and Research Services Section)

Date Received Received by Sample No

RDB

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-079 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE SEDIMENT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	4.03 µg/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 080

Alberta ENVIRONMENTAL CENTRE

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

Chemical Analysis Request

Methods Development and Research Services Section

(IMPORTANT: see reverse side for sample requirements)

Results to T.J. TRIMBLE (name) LIMITED PARTNERSHIP

(address) 4-7-5968 (telephone)

Sample Type

Ground Water		Soil	Plant
Surface Water		Sediment X	Biota
Industrial Effluent		Sludge	Other

Program Project Is this for human consumption?

Sampling Location SAMPLE # 3 LITTLE RIVER

Date Sampled MAR - 30/85 Sampled by T.T. J.S

Analysis Required (please specify)

PCB

(To be completed by Methods Development and Research Services Section)

Date Received Received by Sample No

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-080 Methods Development & Research Services Section RNB

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE SEDIMENT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	2.80 µg/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 081

Alberta ENVIRONMENTAL CENTRE

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

Chemical Analysis Request

Methods Development and Research Services Section

(IMPORTANT: see reverse side for sample requirements)

Results to ... TOM TRIPOLE (name) WSE MAN GP.

4' SHERIDAN (address) 967-5622 (telephone)

Sample Type: Ground Water ... Soil ... Plant ...
Surface Water ... Sediment ... X ... Biota ...
Industrial Effluent ... Sludge ... Other ...

Program Project ... Is this for human consumption? ...

Sampling Location ... STRIPPER E 4
FOCH MUSKG

Date Sampled ... MAR 30/85 ... Sampled by ... TT JS

Analysis Required (please specify) ... PCB

(To be completed by Methods Development and Research Services Section)

Date Received ... Received by ... Sample No ...

RMS

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-081 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE SEDIMENT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	3.00 µg/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified ... for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 082

Alberta
ENVIRONMENTAL CENTRE

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

Chemical Analysis Request

Methods Development and Research Services Section

(IMPORTANT see reverse side for sample requirements)

Results to TOM TRIMBLE (name) WASTE MGMT BR.

4th STREET (address) 427-3868 (telephone)

Sample Type: Ground Water ..... Soil ..... Plant .....

Surface Water ..... Sediment X Biota .....

Industrial Effluent ..... Sludge ..... Other .....

Program Project ..... Is this for human consumption? .....

Sampling Location SPRUCE #5

DRUM NISKU

Date Sampled APR 30/85 Sampled by TT SS

Analysis Required (please specify)

PCB

(To be completed by Methods Development and Research Services Section)

Date Received ..... Received by ..... Sample No .....

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-082 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE SEDIMENT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	0.11 µg/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified Dawson Smith for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 083

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

(IMPORTANT: see reverse side for sample requirements)

Results to TOM TRIMBLE (name) WASTE MANAGE

4th ORDER PLACE (address) 827-5868 (telephone)

Sample Type: Ground Water ..... Soil ..... Plant .....

Surface Water ..... Sediment X Biota .....

Industrial Effluent ..... Sludge ..... Other .....

Program Project ..... Is this for human consumption? .....

Sampling Location SWALE #6

LINDA WASTE

Date Sampled APR. 30/85 Sampled by TT SS

Analysis Required (please specify)

PCB

(To be completed by Methods Development and Research Services Section)

Date Received ..... Received by ..... Sample No .....

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-083 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE SEDIMENT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	not detected	<0.05 µg/g

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified ..... for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 · 114

Alberta ENVIRONMENTAL CENTRE

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

Chemical Analysis Request

Methods Development and Research Services Section

(IMPORTANT: see reverse side for sample requirements)

Results to Trimble (name)

4th Oxbridge (address) 7-5868 (telephone)

Sample Type: Ground Water ..... Soil ..... Plant .....

Surface Water ..... Sediment ..... Biota .....

Industrial Effluent ..... Sludge ..... Other ✓ Asphalt

Program Project: Ongoing Is this for human consumption? No

Sampling Location: Spruce # 7

Date Sampled: May 1 1985 Sampled by: TT JS

Analysis Required (please specify): PCB

(To be completed by Methods Development and Research Services Section)

Date Received: May 2 Received by: (initials) Sample No: T518 - 114

RMB

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-114 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE ASPHALT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	28.2 µg/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 · 115

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

(IMPORTANT see reverse side for sample requirements)

Results to Trimble (name)

4th Oakridge (address) 7-5560 (telephone)

Sample Type: Ground Water ... Soil ... Plant ...
Surface Water ... Sediment ... Biota ...
Industrial Effluent ... Sludge ... (Other) Asphalt

Program Project Ongoing ... Is this for human consumption? N/O

Sampling Location Stand #9

Date Sampled May 1 85 Sampled by TT JS

Analysis Required (please specify) PCB

(To be completed by Methods Development and Research Services Section)

Date Received May 2 Received by (BJS) Sample # T518-115

RDR

CHEMICAL ANALYSIS REPORT

LAB. NO. T51E-115 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE ASPHALT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	7.57 ug/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 084

Alberta ENVIRONMENTAL CENTRE

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

Chemical Analysis Request

Methods Development and Research Services Section

(IMPORTANT see reverse side for sample requirements)

Results to T. Trimble (name)

4th Fl. Oldbridge (address) 7. 5886 (telephone)

Sample Type: Ground Water ..... Soil ..... Plant .....
Surface Water ..... Sediment ✓ Biota .....
Industrie Effluent ..... Sludge ..... Other .....

Program Project ..... Is this for human consumption? .....

Sampling Location North Ditch Site #10

Date Sampled [illegible] Sampled by TT JS

Analysis Required (please specify) PCB

(To be completed by Methods Development and Research Services Section

Date Received ..... Received by ..... Sample No .....

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-084 Methods Development & Research Services Section RDS

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE SEDIMENT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	0.10 µg/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518085

Alberta ENVIRONMENTAL CENTRE

SAG 4000 VEGREVILLE ALBERTA T0B 4L0

Chemical Analysis Request

Methods Development and Research Services Section

(IMPORTANT: see reverse side for sample requirements)

Results to T. Trimble (name)

Alta Env. Centre (address) 7-5668 (telephone)

Sample Type: Ground Water ..... Soil ..... Plant .....
Surface Water ..... Sediment ✓ Biota .....
Industrial Effluent ..... Sludge ..... Other .....

Program Project ..... Is this for human consumption? .....

Sampling Location Lesser Slave Lake Site # 11

Date Sampled May 30/85 Sampled by T. Trimble

Analysis Required (please specify) PCB

(To be completed by Methods Development and Research Services Section)

Date Received ..... Received by ..... Sample No .....

CHEMICAL ANALYSIS REPORT

RDS

LAB. NO. T518-085 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE SEDIMENT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	not detected	<0.05 µg/g

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518086

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

(IMPORTANT: see reverse side for sample requirements)

Results to T. Trimble (name)

a/a FL Oxbridge (address) T-5868 (telephone)

Sample Type

Ground Water		Soil	Plant
Surface Water		Sediment ✓	Biota
Industrial Effluent		Sludge	Other

Program Project ..... Is this for human consumption? .....

Sampling Location North Ditch Site # 12

Date Sampled ~~Apr~~ 30/85 Sampled by TT JS

Analysis Required (please specify) PCB

(To be completed by Methods Development and Research Services Section)

Date Received ..... Received by ..... Sample No .....

RMB

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-086 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) **SAMPLE TYPE SEDIMENT**

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	0.05 µg/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 087

Alberta ENVIRONMENTAL CENTRE

BAG 4000, VEGREVILLE, ALBERTA T0B 4L0

Chemical Analysis Request

Methods Development and Research Services Section

(IMPORTANT: see reverse side for sample requirements)

Results to T. Trimble (name) NHE (address) 7-5[illegible] (telephone)

Sample Type: Ground Water ..... Soil ..... Plant .....
Surface Water ..... Sediment ✓ Biota .....
Industrial Effluent ..... Sludge ..... Other .....

Program Project ..... Is this for human consumption? .....

Sampling Location Sample ID Culvert Outfall

Date Sampled [illegible] Sampled by T. S

Analysis Required (please specify) T. P.

(To be completed by Methods Development and Research Services Section)

Date Received ..... Received by ..... Sample No .....

RMS

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-087 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE SEDIMENT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	0.11 ug/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 088

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE, ALBERTA T0B 4L0

(IMPORTANT: see reverse side for sample requirements)

Results to TOM TAYLOR WASTE MGMT BR.
(name)

4th CRESCENT P. 927-5621
(address) (telephone)

Sample Type

Ground Water		Soil	Plant
Surface Water		Sediment X	Biota
Industrial Effluent		Sludge	Other

Program/Project Is this for human consumption?

Sampling Location SPRUCE #19
MISC. STORM WATER COLLECTION POND

Date Sampled APR 30/85 Sampled by T T

Analysis Required (please specify)

PCB

(To be completed by Methods Development and Research Services Section)

Date Received Received by Sample No

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-088 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE SEDIMENT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	not detected	<0.05 µg/g

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 089

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

(IMPORTANT: see reverse side for sample requirements)

Results to TOM TRAMBLE (name) WASTE MGMT DIV

(address) 427-5862 (telephone)

Sample Type

Ground Water		Soil		Plant	
Surface Water		Sediment	X	Biota	
Industrial Effluent		Sludge		Other	

Program Project Is this for human consumption?

Sampling Location SAMPLE # 15 CANAL MAIN STORM WATER POND

Date Sampled APR - 30/85 Sampled by T.T. S.S.

Analysis Required (please specify) PCB

(To be completed by Methods Development and Research Services Section)

Date Received Received by Sample No

CHEMICAL ANALYSIS REPORT

RDS

LAB. NO. T518-089 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE SEDIMENT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	0.05 µg/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518090

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE, ALBERTA T0B 4L0

(IMPORTANT: see reverse side for sample requirements)

Results to ... (name) ... (address) ... (telephone)

Sample Type: Ground Water ... Soil ... Plant ... Surface Water Y Sediment ... Biota ... Industrial Effluent ... Sludge ... Other ...

Program/Project ... Is this for human consumption? ...

Sampling Location ...

Date Sampled ... Sampled by ...

Analysis Required (please specify)

PCB

(To be completed by Methods Development and Research Services Section)

Date Received ... Received by ... Sample No ...

RDS

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-090 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE WATER

PARAMETER	AMOUNT µg/L	DETECTION LIMIT µg/L
PCB	not detected	< 0.05 µg/L

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified ... for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

02216

T518 091

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

(IMPORTANT: see reverse side for sample requirements)

Results to Jim Thomas Water Mgt Br
(name)

Gen Fd Oxbridge Pl 627-3263
(address) (telephone)

Sample Type

Ground Water		Soil	Plant
Surface Water	X	Sediment	Biota
Industrial Effluent		Sludge	Other

Program Project ..... Is this for human consumption? .....

Sampling Location Station 17
@ Mink Pond Ck Below Confl of Blackwall Ck

Date Sampled May 1/85 Sampled by T T SS

Analysis Required (please specify

PCB

RMS

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-091 Methods Development & Research Services Section

Date Received May 1/85 Date Completed May 2/85

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE WATER

PARAMETER	AMOUNT µg/L	DETECTION LIMIT µg/L
PCB as Arochlor 1260	0.3 µg/L	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss
0040i

T518 092

Alberta ENVIRONMENTAL CENTRE

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

Chemical Analysis Request

Methods Development and Research Services Section

(IMPORTANT: see reverse side for sample requirements)

Results to ..... (name)

..... (address) ..... (telephone)

Sample Type

Ground Water	Soil	Plant .....
Surface Water	Sediment ..... X	Biota .....
Industrial Effluent	Sludge	Other .....

Program Project ..... Is this for human consumption? .....

Sampling Location .....

.....

Date Sampled ..... Sampled by .....

Analysis Required (please specify)

PCB

(To be completed by Methods Development and Research Services Section)

Date Received ..... Received by ..... Sample No. .....

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-092 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE SEDIMENT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	0.10 µg/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified ..... for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 093

Alberta ENVIRONMENTAL CENTRE

BAG 4000, VEGREVILLE, ALBERTA T0B 4L0

Chemical Analysis Request

Methods Development and Research Services Section

(IMPORTANT: see reverse side for sample requirements)

Results to T.A. TURNER (name)

4th [illegible] PLACE (address) 937-5865 (telephone)

Sample Type

Ground Water		Soil		Plant	
Surface Water	X	Sediment		Biota	
Industrial Effluent		Sludge		Other	

Program/Project ..... Is this for human consumption? .....

Sampling Location [illegible] PT. [illegible] CK @ [illegible] CORN OF WHITEMUD CK.

Date Sampled Apr. 30/85 Sampled by TT JJ

Analysis Required (please specify)

PCB

(To be completed by Methods Development and Research Services Section)

Date Received ..... Received by ..... Sample No .....

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-093 Methods Development & Research Services Section

Date Received May 1/85 Date Completed May 2/85

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE WATER

PARAMETER	AMOUNT µg/L	DETECTION LIMIT µg/L
PCB	Not detected	< 0.05 µg/L

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss
0040x

T518094

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE, ALBERTA T0B 4L0

(IMPORTANT: see reverse side for sample requirements)

Results to Tim Trimble (name) Inspec Canada

4th Chemical Rd (address) 427-5861 (telephone)

Sample Type

Ground Water		Soil	Plant
Surface Water	X	Sediment	Biota
Industrial Effluent		Sludge	Other

Program Project Is this for human consumption?

Sampling Location Spruce 220

Paddock Creek [redacted] Creek at Bashaw Rd

Date Sampled May 1/85 Sampled by TT SS

Analysis Required (please specify)

PCB

(To be completed by Methods Development and Research Services Section)

Date Received Received by Sample No

RMS

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-094 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE WATER

PARAMETER	AMOUNT µg/L	DETECTION LIMIT µg/L
PCB	not detected	<0.05 µg/L

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

02214

T518 095

Alberta ENVIRONMENTAL CENTRE

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

Chemical Analysis Request

Methods Development and Research Services Section

(IMPORTANT: see reverse side for sample requirements)

Results to TOM TRUMBLE (name) [illegible]

4th ORDER OF [illegible] (address) 922-5868 (telephone)

Sample Type: Ground Water ..... Soil ..... Plant .....

Surface Water ... Y ... Sediment ..... Biota .....

Industrial Effluent ..... Sludge ..... Other .....

Program Project ..... Is this for human consumption? .....

Sampling Location [illegible]

Date Sampled [illegible] Sampled by [illegible]

Analysis Required (please specify)

PCB

(To be completed by Methods Development and Research Services Section)

Date Received / Received by [illegible] Sample No [illegible]

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-095 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE WATER

PARAMETER	AMOUNT µg/L	DETECTION LIMIT µg/L
PCB	not detected	<0.05 µg/L

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 · 111

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

(IMPORTANT: see reverse side for sample requirements)

Results to Trimble (name)

4th Ostwick (address) 7-5868 (telephone)

Sample Type: Ground Water ..... Soil ✓ Plant .....

Surface Water ..... Sediment ..... Biota .....

Industrial Effluent ..... Sludge ..... Other .....

Program Project ..... Is this for human consumption? N/O

Sampling Location DD Sample 22

Date Sampled May 1/85 Sampled by TT JS

Analysis Required (please specify) PCB

(To be completed by Methods Development and Research Services Section)

Date Received ..... Received by (BJ3) Sample No T518 : 111

RMS

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-111 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE SOIL

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	43.3 µg/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 · 112

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

(IMPORTANT see reverse side for sample requirements)

Results to ... Tom TRIMBLE ... WHITE MAN CR ...
(name)

... 4th ORDIDGE PL ... 527-5868
(address) (telephone)

Sample Type

Ground Water		Soil		Plant	
Surface Water		Sediment	X	Biota	
Industrial Effluent		Sludge		Other	

Program Project ... Is this for human consumption? ...

Sampling Location ... #23
OMEGA NISKU

Date Sampled ... Sampled by TT SS

Analysis Required (please specify)

(To be completed by Methods Development and Research Services Section

Date Received ... Received by ... Sample No T518 112

RDS

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-112 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE SEDIMENT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	0.20 µg/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified ... for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221x

T518 · 113

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

(IMPORTANT. see reverse side for sample requirements)

Results to TOM TAMELL (name) WASTE MAN. BR.

4TH FL. CHARLES ST (address) 427-5867 (telephone)

Sample Type

Ground Water		Soil	Plant
Surface Water		Sediment X	Biota
Industrial Effluent		Sludge	Other

Program Project Is this for human consumption?

Sampling Location SAMPLE # 24 DITCH MIRAU

Date Sampled MAY 1/85 Sampled by JT SS

Analysis Required (please specify)

PCB

(To be completed by Methods Development and Research Services Section)

Date Received May 2 Received by (BSS) Sample No T518 113

RJS

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-113 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE SEDIMENT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	0.34 ug/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified B. Sim Senior for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/B5/ss

0221k

T518 096

Alberta ENVIRONMENTAL CENTRE

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

Chemical Analysis Request

Methods Development and Research Services Section

(IMPORTANT: see reverse side for sample requirements)

Results to TOM TRIBLE (name) WASTE MAN BR.

4TH CRESCENT (address) 42-5868 (telephone)

Sample Type: Ground Water ..... Soil ..... Plant .....

Surface Water ..... Sediment X Biota .....

Industrial Effluent ..... Sludge ..... Other .....

Program Project ..... Is this for human consumption? .....

Sampling Location SEWAGE # 26 LAGOON AT MILO

Date Sampled APRIL 30/85 Sampled by TT JS

Analysis Required (please specify) PCB

(To be completed by Methods Development and Research Services Section)

Date Received ..... Received by ..... Sample No. T518

RNS

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-096 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE SEDIMENT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	not detected	<0.05 µg/g

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified ..... for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

02211

T518097

Alberta ENVIRONMENTAL CENTRE

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

Chemical Analysis Request

Methods Development and Research Services Section

(IMPORTANT: see reverse side for sample requirements)

Results to Tom Trimble (name) Waste Mgmt Br

4th Carlisle Rd (address) 427-5868 (telephone)

Sample Type

Ground Water	Soil	Plant	
Surface Water	Sediment X	Biota	
Industrial Effluent	Sludge	Other	

Program/Project ____ Is this for human consumption? ____

Sampling Location Sample # 27 Lake at Nisku

Date Sampled Apr. 30, 85 Sampled by T. Jones

Analysis Required (please specify) PCB

(To be completed by Methods Development and Research Services Section)

Date Received ____ Received by ____ Sample No ____

CHEMICAL ANALYSIS REPORT

RDB

LAB. NO. T518-097 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) **SAMPLE TYPE SEDIMENT**

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	5.00 µg/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 098

Alberta
ENVIRONMENTAL CENTRE

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

Chemical Analysis Request

Methods Development and Research Services Section

(IMPORTANT: see reverse side for sample requirements)

Results to ..... (name)

..... (address) ..... (telephone)

Sample Type

Ground Water		Soil	Plant
Surface Water		Sediment X	Biota
Industrial Effluent		Sludge	Other

Program Project ..... Is this for human consumption? .....

Sampling Location .....

Date Sampled ..... Sampled by .....

Analysis Required (please specify) PCB

(To be completed by Methods Development and Research Services Section)

Date Received ..... Received by ..... Sample No .....

RB

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-098 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE SEDIMENT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	8.78 µg/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified ..... for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 099

Alberta
ENVIRONMENTAL CENTRE

BAG 4000, VEGREVILLE, ALBERTA T0B 4L0

Chemical Analysis Request

Methods Development and Research Services Section

(IMPORTANT: see reverse side for sample requirements)

Results to ..... (name) ..... (address) ..... (telephone)

Sample Type

Ground Water		Soil		Plant	
Surface Water		Sediment	X	Biota	
Industrial Effluent		Sludge		Other	

Program/Project ..... Is this for human consumption? .....

Sampling Location .....

Date Sampled ..... Sampled by .....

Analysis Required (please specify) .....

(To be completed by Methods Development and Research Services Section)

Date Received ..... Received by ..... Sample No .....

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-099 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE SEDIMENT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	65.7 µg/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified ..... for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 100

Alberta ENVIRONMENTAL CENTRE

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

Chemical Analysis Request

Methods Development and Research Services Section

(IMPORTANT: see reverse side for sample requirements)

Results to: Tom Trimble (name) Water Res. Br.

[illegible] (address) 427-5868 (telephone)

Sample Type

Ground Water		Soil	Plant
Surface Water		Sediment X	Biota
Industrial Effluent		Sludge	Other

Program Project: Is this for human consumption?

Sampling Location: Station 30 [illegible]

[illegible] Wisa

Date Sampled: [illegible] Sampled by: JT [illegible]

Analysis Required (please specify): PCB

(To be completed by Methods Development and Research Services Section)

Date Received: Received by: Sample No:

RDS

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-100 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE SEDIMENT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	32.1 µg/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 · 116

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

(IMPORTANT: see reverse side for sample requirements)

Results to Trimble (name)

4th Outbridge (address) 7-5868 (telephone)

Sample Type: Ground Water ..... Soil ..... Plant .....

Surface Water ..... Sediment ..... Biota .....

Industrial Effluent ..... Sludge ..... (Other) Asphalt

Program Project Lighting ..... Is this for human consumption? No

Sampling Location K.C. Site # 31

Date Sampled May 1 Sampled by JS TT

Analysis Required (please specify) PCB

(To be completed by Methods Development and Research Services Section)

Date Received May 2 Received by (BS) Sample No T518-116

RNS

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-116 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE ASPHALT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	1630 µg/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified Jim Smith for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 101

Alberta ENVIRONMENTAL CENTRE

BAG 4000 VEGREVILLE, ALBERTA T0B 4L0

Chemical Analysis Request

Methods Development and Research Services Section

(IMPORTANT: see reverse side for sample requirements)

Results to: Tom TRIMBLE (name) WASTE MAN. BR.

4th fl CHEMICAL Bldg (address) 427-5868 (telephone)

Sample Type: Ground Water ..... Soil ..... Plant .....

Surface Water X Sediment ..... Biota .....

Industrial Effluent ..... Sludge ..... Other .....

Program Project ..... Is this for human consumption? .....

Sampling Location: SAMPLE #32 BEAVER MUD CK AT NISKU SEWAGE LAGOON OUTFALL

Date Sampled: APRIL 30/85 Sampled by: JT SJ

Analysis Required (please specify):

PCB

(To be completed by Methods Development and Research Services Section)

Date Received ..... Received by ..... Sample No .....

RMS.

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-101 Methods Development & Research Services Section

Date Received May 1/85 Date Completed May 2/85

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE WATER

PARAMETER	AMOUNT µg/L	DETECTION LIMIT µg/L
PCB	Not detected	< 0.05 µg/L

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss
0040k

T518 102

Alberta ENVIRONMENTAL CENTRE

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

Chemical Analysis Request

Methods Development and Research Services Section

(IMPORTANT: see reverse side for sample requirements)

Results to ..... (name)

..... (address) ..... (telephone)

Sample Type

Ground Water		Soil	Plant
Surface Water	Y	Sediment	Biota
Industrial Effluent		Sludge	Other

Program Project ..... Is this for human consumption? .....

Sampling Location .....

Date Sampled ..... Sampled by .....

Analysis Required (please specify)

.....

(To be completed by Methods Development and Research Services Section)

Date Received ..... Received by ..... Sample No .....

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-102 Methods Development & Research Services Section

Date Received May 1/85 Date Completed May 2/85

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE WATER

PARAMETER	AMOUNT µg/L	DETECTION LIMIT µg/L
PCB	Not detected	< 0.05 µg/L

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified ..... for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss
0040k

T518 103

Alberta ENVIRONMENTAL CENTRE

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

Chemical Analysis Request

Methods Development and Research Services Section

(IMPORTANT see reverse side for sample requirements)

Results to TOM TRICKLE (name) WASTE MGMT BR

(address) (telephone)

Sample Type: Ground Water ..... Soil ..... Plant .....

Surface Water ✓ Sediment ..... Biota .....

Industrial Effluent ..... Sludge ..... Other .....

Program/Project ..... Is this for human consumption? .....

Sampling Location SAMPLE # 3.5

Date Sampled ..... Sampled by .....

Analysis Required (please specify)

PCB

(To be completed by Methods Development and Research Services Section)

Date Received ..... Received by ..... Sample No .....

RAS

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-103 Methods Development & Research Services Section

Date Received May 1/85 Date Completed May 2/85

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE WATER

PARAMETER	AMOUNT µg/L	DETECTION LIMIT µg/L
PCB	Not detected	< 0.05 µg/L

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified ..... for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss
0040x

T518 104

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

(IMPORTANT see reverse side for sample requirements)

Results to JOHN TRIPPLE (name) WASTE MAN'T

4TH FL CHEMICAL BLDG (address) 427-5863 (telephone)

Sample Type: Ground Water ... Soil ... Plant ...
Surface Water X Sediment ... Biota ...
Industrial Effluent ... Sludge ... Other ...

Program Project ... Is this for human consumption? ...

Sampling Location [illegible]

Date Sampled [illegible] Sampled by [illegible]

Analysis Required (please specify)

PCB

(To be completed by Methods Development and Research Services Section)

Date Received ... Received by ... Sample No ...

RMS

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-104 Methods Development & Research Services Section

Date Received May 1/85 Date Completed May 2/85

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE WATER

PARAMETER	AMOUNT µg/L	DETECTION LIMIT µg/L
PCB as Arochlor 1260	17.8 µg/L	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss
0040A

7518 105

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

(IMPORTANT: see reverse side for sample requirements)

Results to Terry Fenwick (name) Waste Mgmt Br

54 52 Oakridge Place (address) 427-5868 (telephone)

Sample Type

Ground Water		Soil		Plant	
Surface Water	X	Sediment		Biota	
Industrial Effluent		Sludge		Other	

Program Project Is this for human consumption?

Sampling Location Sample #37
Borrow pit on Fifer Rd

Date Sampled Apr 30/85 Sampled by T. F. S.

Analysis Required (please specify) PCB

(To be completed by Methods Development and Research Services Section)

Date Received Received by Sample No

RDS

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-105 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE WATER

PARAMETER	AMOUNT µg/L	DETECTION LIMIT µg/L
PCB	not detected	<0.05 µg/L

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

TS18 · 110

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

(IMPORTANT: see reverse side for sample requirements)

Results to TOM TRIMBLE (name) WASTE MAN BR

4TH FL OXBRIDGE PL (address) 427-5867Y (telephone)

Sample Type

Ground Water		Soil	Plant
Surface Water	X	Sediment	Biota
Industrial Effluent		Sludge	Other

Program Project Is this for human consumption?

Sampling Location SAMPLE #3E DITCH NEAR

Date Sampled APR 1/85 Sampled by T T SS

Analysis Required (please specify)

PCB

(To be completed by Methods Development and Research Services Section)

Date Received Received by (BJS) Sample No TS18 110

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-110 Methods Development & Research Services Section

Date Received May 2/85 Date Completed May 4/85

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE WATER

PARAMETER	AMOUNT µg/L	DETECTION LIMIT µg/L
PCB	Not detected	< 0.05 µg/L
Triallate	Not detected	< 0.04 µg/L
Treflan	Not detected	< 0.03 µg/L

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss
0040x

T518 • 117

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

(IMPORTANT: see reverse side for sample requirements)

Results to Tirumble (name)

Fort Assiniboine (address) T-5868 (telephone)

Sample Type: Ground Water ..... Soil ..... Plant .....

Surface Water ..... Sediment ..... Biota .....

Industrial Effluent ..... Sludge ..... (Other) Asphalt

Program Project Surface ..... Is this for human consumption? .....

Sampling Location Structure # 39

Date Sampled May 1, 985 Sampled by TT JS

Analysis Required (please specify) PCB

(To be completed by Methods Development and Research Services Section)

Date Received ..... Received by (DSS) Sample No T518-117

CHEMICAL ANALYSIS REPORT

RDS

LAB. NO. T518-117 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE ASPHALT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	213 µg/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 · 118

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

(IMPORTANT: see reverse side for sample requirements)

Results to Steele
(name)

Edmonton
(address) 7-5868
(telephone)

Sample Type

Ground Water	Soil	Plant
Surface Water	Sediment	Biota
Industrial Effluent	Sludge	Other Asphalt

Program Project Research

Is this for human consumption?

Sampling Location Stockpile #6 AO

Date Sampled May 1, 1985 Sampled by TT JS

Analysis Required (please specify) PCBs

(To be completed by Methods Development and Research Services Section)

Date Received May 2 Received by RDS Sample No T518-118

RDS

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-118 Methods Development & Research Services Section

Date Received May 1, 1985 Date Completed May 2, 1985

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE ASPHALT

PARAMETER	AMOUNT	DETECTION LIMIT
PCB as Aroclor 1260	6.57 µg/g	

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss

0221k

T518 · 106

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE, ALBERTA T0B 4L0

(IMPORTANT: see reverse side for sample requirements)

Results to Trimble (name)

4th Okbridge (address) 7-586B (telephone)

Sample Type

Ground Water		Soil	Plant
Surface Water	✓	Sediment	Biota
Industrial Effluent		Sludge	Other

Program Project ongoing Is this for human consumption? No

Sampling Location D&D East Ditch #1 Site #41

Date Sampled May 2/85 Sampled by

Analysis Required (please specify)

PCB

(To be completed by Methods Development and Research Services Section)

Date Received MAY 2 '85 Received by (RJS) Sample No T518 ID#

RDS

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-106 Methods Development & Research Services Section

Date Received May 2/85 Date Completed May 4/85

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE WATER

PARAMETER	AMOUNT µg/L	DETECTION LIMIT µg/L
PCB as 1260	0.3 µg/L	
Triallate	not detected	< 0.04 µg/L
Treflan	not detected	< 0.03 µg/L

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss
0040k

T518 · 107

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE ALBERTA T0B 4L0

(IMPORTANT. see reverse side for sample requirements)

Results to Trimble (name)

4th Oxbridge (address) 7-5868 (telephone)

Sample Type: Ground Water ✓ | Soil | Plant

Surface Water | Sediment | Biota

Industrial Effluent | Sludge | Other

Program/Project: UNGOING Is this for human consumption? No

Sampling Location: KC. Well # 2

Date Sampled: May 2/85 Sampled by: JS

Analysis Required (please specify): Treflan/Avadex PCB

(To be completed by Methods Development and Research Services Section)

Date Received: [illegible] Received by: (BJL) Sample No. T518 107

RM

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-107 Methods Development & Research Services Section

Date Received May 2/85 Date Completed May 4/85

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE WATER

PARAMETER	AMOUNT µg/L	DETECTION LIMIT µg/L
PCB	Not detected	< 0.05 µg/L
Triallate	Not detected	< 0.04 µg/L
Treflan	Not detected	< 0.03 µg/L

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss
0041k

T518 - 108

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE, ALBERTA T0B 4L0

(IMPORTANT: see reverse side for sample requirements)

Results to I Trimble (name)

4th Oxbridge (address) 7-5868 (telephone)

Sample Type

Ground Water ✓	Soil		Plant
Surface Water	Sediment		Biota
Industrial Effluent	Sludge		Other

Program Project ongoing Is this for human consumption? No

Sampling Location K.C. Well #3

Date Sampled May 2/85 Sampled by JS

Analysis Required (please specify) Treflan / Avadex PCB

(To be completed by Methods Development and Research Services Section)

Date Received [illegible] Received by (BCS) Sample No T518 108

CHEMICAL ANALYSIS REPORT

BJS

LAB. NO. T518-108 Methods Development & Research Services Section

Date Received May 2/85 Date Completed May 4/85

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE WATER

PARAMETER	AMOUNT µg/L	DETECTION LIMIT µg/L
PCB	Not detected	< 0.05 µg/L
Triallate	Not detected	< 0.04 µg/L
Treflan	Not detected	< 0.03 µg/L

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss
0040k

T518 · 109

Alberta ENVIRONMENTAL CENTRE

Chemical Analysis Request

Methods Development and Research Services Section

BAG 4000 VEGREVILLE, ALBERTA T0B 4L0

(IMPORTANT: see reverse side for sample requirements)

Results to Trimble (name)

4th Oxbridge (address) 7-5868 (telephone)

Sample Type: Ground Water ✓ | Soil | Plant

Surface Water | Sediment | Biota

Industrial Effluent | Sludge | Other

Program Project Ongoing Is this for human consumption? No

Sampling Location K.C. Well #5

Date Sampled May 2/85 Sampled by SS

Analysis Required (please specify) Treflan/Kraxler PCB

(To be completed by Methods Development and Research Services Section)

Date Received MAY 2 '85 Received by (BJS) Sample No T518 109

RJS

CHEMICAL ANALYSIS REPORT

LAB. NO. T518-109 Methods Development & Research Services Section

Date Received May 2/85 Date Completed May 4/85

POLYCHLORINATED BIPHENYLS SCAN (PCB's) SAMPLE TYPE WATER

PARAMETER	AMOUNT µg/L	DETECTION LIMIT µg/L
PCB	Not detected	< 0.05 µg/L
Triallate	Not detected	< 0.04 µg/L
Treflan	Not detected	< 0.03 µg/L

Method of determination as outlined in Methods Manual for Chemical Analysis of Pesticides and PCB Residues in Water and Wastes.

Certified [signature] for Methods Development & Research Services Section
Chemistry Wing
Alberta Environmental Centre

02/05/85/ss
0040k

APPENDIX II

Nisku Industrial Park
PCB Storage Facility
Sampling Program

January, 1983

NISKU INDUSTRIAL PARK
PCB STORAGE FACILITY
SAMPLING PROGRAM

Alberta Environment
Pollution Control Division
Waste Management Branch
January, 1983

INTRODUCTION

On January 13, 1983, an allegation was made that polychlorinated biphenyls (PCBs) were leaking from the Kinetic Ecological Resource Group (1982) Ltd. facility at 1204 - 1208 8A Street, Nisku. The report was based on two samples, one taken from the ditch to the immediate east of the facility (reported PCB concentration 5 ppm) and the other taken from inside the fenced property (reported PCB concentration 2,000 ppm).

Upon receipt of this information, Alberta Environment dispatched personnel to sample the immediate vicinity of the site on the evening of January 13 and downstream of the site on January 14. Additional samples were taken on January 17.

The purpose of the sampling and analysis was to determine whether there was PCB contamination and leakage from the site. PCBs are non-reactive stable substances which have been used as electric transformer coolant fluids. They are persistant in the environment and must be controlled in use and disposal.

Canadian government guidelines set 50 parts per million (ppm) and above as the level for PCB contamination. (See Appendix I). Any material with less than five ppm is considered free of PCBs for all purposes except human consumption.

In Alberta, the storage and handling of hazardous chemicals such as PCBs are governed by the Hazardous Chemicals Act. The Act gives the Minister of Environment the authority to take whatever action is necessary to ensure proper handling, storage and disposal of hazardous chemicals. Under the legislation, Alberta Environment may issue a control order to a company if there is evidence of improper procedures. A control order would require a company to clean up contaminated areas and improve procedures and/or facilities.

SAMPLING AND TESTING PROCEDURES

An expert sampling team,comprised of A. Leander, T. Trimble and S. Livingstone of the Pollution Control Division was formed to obtain the necessary samples. Sampling involved the following procedures:

1. Site Inspection
   - a general survey of the area resulted in the selection of a representative location for taking samples.
2. Sample Location Selection and Sampling

   Soil/Sediment/Ice samples - a specific location is selected based on topography - low lying areas and depressions are preferred. Snow and debris are removed, the soil is loosened with a clean chisel/ice pick and a sample is scooped into the glass container.

   Water samples - a specific site is located based on water flow. A hole is made in the ice with a clean ice pick, the debris removed and a sample dipped out.

Samples were placed in either new glass jars or laboratory cleaned glass bottles. The container was then sealed with aluminum foil and the lid screwed on. Pertinent information was then written directly onto the container label.

Nine samples were taken on the night of Thursday, January 13, 1983, in the vicinity of Kinetic Ecological Resource Group storage facility. Figure I shows the sampling locations.

The initial set of samples were taken to establish a background level (Samples 1 and 6) and to determine if PCBs had escaped into the stormwater drainage syster (Samples 2, 3 and 4). Samples were also taken within the Kinetic compound (sample 7, 8 and 9) to establish the degree of on-site contamination.

Sampling was continued on Friday, January 14. The stormwater drainage system within Nisku Industrial Park, downstream from the Kinetic Ecological Resource Group site to the discharge into Blackmud Creek, was sampled (Figure II, Samples 10, 11, 12, 13, 14 and 15). The drainage system comprising Blackmud Creek - Whitemud Creek - North Saskatchewan River was also sampled (Figure II, Sample 16; Figure III, Samples 17, 18, 19, 20 and 21).

Samples were also taken in and around the site of another PCB disposal firm, D & D Group (Figure II, Samples 22, 23 and 24).

The samples collected Thursday and Friday were analyzed on the weekend by the Alberta Environmental Centre, Vegreville. Based on these results, a further sampling was carried out on the Kinetic Ecological Resource Group site (Samples 25, 26, 27, 28, 29, 30 and 31). In addition, a water sample was taken from the discharge of the Nisku Industrial Park sewage lagoon (Sample 32). A soil sample was taken in Edmonton (50 Street and 13 Avenue, Sample 33) to establish a background level.

Table I is a summary of all the samples taken, type of sample, sample location and reason for sampling.

RESULTS

All the samples were analyzed by the Chemistry Section of the Alberta Environmental Centre, Vegreville for PCB concentration. The analytical results are shown in Table II. The samples can be divided into three broad categories:

On-site samples: 7, 8, 9, 25, 31 (Kinetic)

22 (D & D Group)

Drainage Samples: 1, 2, 3, 4, 5, 6, 10, 11, 12, 13, 14, 15, 23, 24

Water Course Samples: 16, 17, 18, 19, 20 ,21, 32

Two general background samples were taken: a soil sample from 50 Street and 13 Avenue, which had less than 0.025 ppm; and a City of Edmonton drinking water sample, which had less than 0.000005 ppm (i.e. not detectable).

The on-site asphalt samples at Kinetic ranged from 5 ppm to 0.325 ppm. The sample that had the high reading was taken from a high usage area in the compound. Sample 7 also had a water component which was analyzed separately and contained less than 0.000065 ppm PCBs. The on-site D & D Group Sample (Sample 22) contained less than 0.025 ppm PCBs.

The drainage system samples were all taken from the Nisku Industrial Park stormwater drainage system. The samples can be subdivided into those taken in the immediate area of a facility (Samples 1, 2, 3, 4, 5, 6, 7 ,8, 9, 25, 26, 27, 28, 29, 30, 31 in the immediate vicinity of Kinetic Ecological Resource Group and Samples 23 and 24 in the immediate vicinity of D. & D Group) and those taken downstream from the facilities (Samples 10, 11, 12, 13, 14, 15, 23, 25). In the immediate vicinity of the facilities, the background samples (upstream Samples 1, 6, 23) contained less than 0.030 ppm PCBs.

In the vicinity of Kinetic Ecological Resource Group (Samples 2, 3, 4, 5, 6, 26, 27, 28, 29, 30) traces of PCBs in the range less than 0.03 to 1.0 ppm were evident. The sample from the D & D Group site (Sample 24) showed less than 0.025 ppm PCBs.

The PCB level in the sediments or in the water of all water course samples (except Sample 32) was not detectable. Sample 32 was taken at the sewage treatment pond outlet and contained 0.00077 ppm PCBs.

CONCLUSION

Levels of PCBs of up to 5.0 ppm were detected on the asphalt pad within the working compound of Kinetic Ecological Resource Group. Since this area is used for the transfer and handling of PCB material, it is assumed that the pad could have received some PCB spillage in the past. Because of the chemical properties of PCB, the material is dissolved into asphalt and cannot be removed easily. Therefore, it is concluded that if a spill occurred, it could have been cleaned up leaving only the residue dissolved in the asphalt. PCB levels are not above those which would be expected in a handling facility for PCBs.

The drainage ditches next to the site show PCB levels from 0.24 to 1.0 ppm. These trace amounts are well below the Federal Guidelines of 50 ppm for contaminated material.

All of the samples of water and soil from the water courses downstream from the site showed no detectable levels of PCB. In addition an independent study "Chemical Residues in Fish Tissues, Part III on the North Saskatchewan and Red Deer Rivers "by Dr. J.W. Moore, Alberta Environmental Centre, Vegreville, confirms the absence of PCB contamination in the North Saskatchewan River. Therefore, it is concluded that no leakage is evident and no danger to the public exists.

The Waste Management Branch, Division of Pollution Control will continue to monitor the site and surrounding area to ensure the maintenance of containment and security.

Table I

Sample #	Type	Sample Location	Reason for Sampling
1	sediment	ditch upstream from KERG	establish local background levels
2	- " -	ditch in front of KERG	check for contamination
3	- " -	- " -	- " -
4	- " -	- " -	- " -
5	- " -	- " -	- " -
6	- " -	ditch upstream from road	establish local background culvert levels
7	asphalt	KERG yard in front of	check for PCB contamination in yard
7	ice	warehouse doors	check for PCB transmitted by forklift
8	asphalt	KERG yard near cement pool	check yard for contamination
9	- " -	KERG yard at north gate	- " -
10	sediment	culvert under road	check for stormwater system contamination
11	ice	north drainage ditch	- " -
12	sediment	- " -	- " -
13	- " -	main drainage ditch	- " -
14	- " -	stormwater runoff pond inlet	- " -
15	- " -	stormwater runoff pond outlet	- " -
16	water	Blackmud Creek & Hwy. 625	check for drainage system contamination
17	- " -	Whitemud Creek downstream	- " -
18	sediment	from confluence with Blackmud	
19	- " -	Blackmud upstream from confluence	- " -
20	- " -	Whitemud upsteam from confluence	establish background levels
21	- " -	NSR downstream from confluence	check for water contamination
22	soil	D & D yard back fence	check for contamination
23	sediment	upstream from D & D yard	establish background levels
24	- " -	downstream from D & D yard	check for contamination
25	asphalt	KERG yard near cement pond	- " -
26	sediment	south end, second culvert	- " -
27	- " -	north end, second culvert	- " -
28	- " -	south end, third culvert	- " -
29	- " t	north end, third culvert	- " -
30	- " -	ditch in front of KERG	check for contamination and as a control for lab
31	asphalt	west side of yard	check for contamination
32	ice	Nisku Park lagoon	- " -
33	soil	50 St & 13 Ave. Edmonton	establish local background levels
34	water	Oxbridge Place	- " -

Table II

Sample #	Sample Type	RESULTS Parts Per Trillion (PPT) (Nanograms Per Litre)	Parts Per Billion (PPB) (Nanograms Per Gram)	Parts Per Million (PPM) (Micrograms Per Gram)
1	sediment		<30	<0.030
2	sediment		330	0.33
3	sediment		880	0.88
4	sediment		260	0.26
5	sediment		240	0.24
6	sediment		<30	<0.030
7	asphalt		780	0.78
7	ice	<65		<0.000065
8	asphalt		5000	5.0
9	asphalt		2500	2.5
10	sediment		<25	<0.025
11	ice	<58		<0.000058
12	sediment		<25	<0.025
13	sediment		<25	<0.025
14	sediment		<25	<0.025
15	sediment		<25	<0.025
16	water	<30		<0.000030
17	water	<30		<0.000030
18	sediment		<25	<0.025
19	water	<30		<0.000030
20	water	<30		<0.000030
21	------	sample destroyed	---------	
22	soil		<25	<0.025
23	sediment		<25	<0.025
24	sediment		<25	<0.025
25	asphalt		3200	3.2
26	sediment		1000	1.0
27	sediment		300	0.30
28	sediment		600	0.60
29	sediment		350	0.35
30	sediment		370	0.37
31	asphalt		325	0.325
32	ice	770		0.00077
33	soil		<25	<0.025
34	water	5		<0.000005

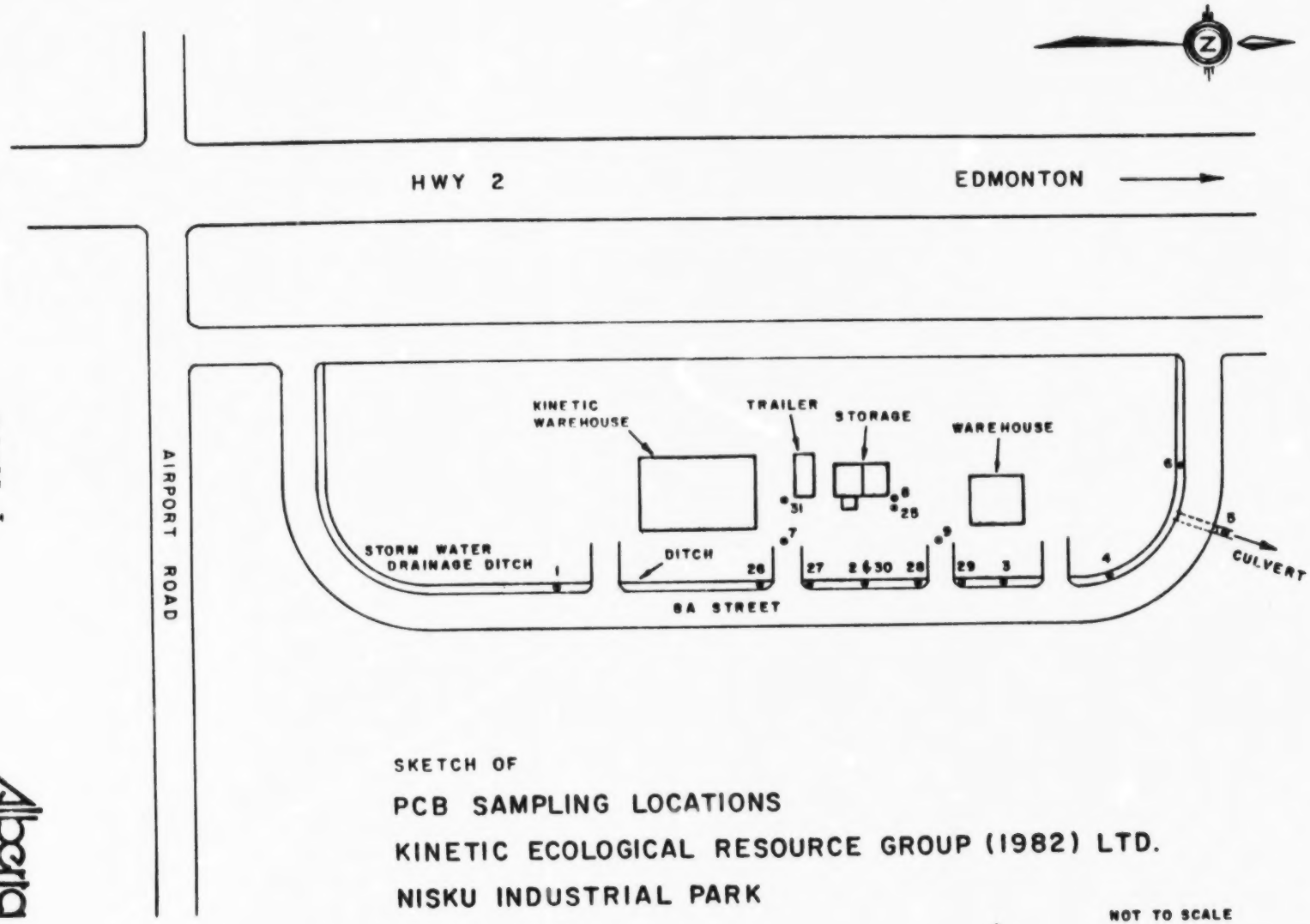


FIGURE 1

SKETCH OF

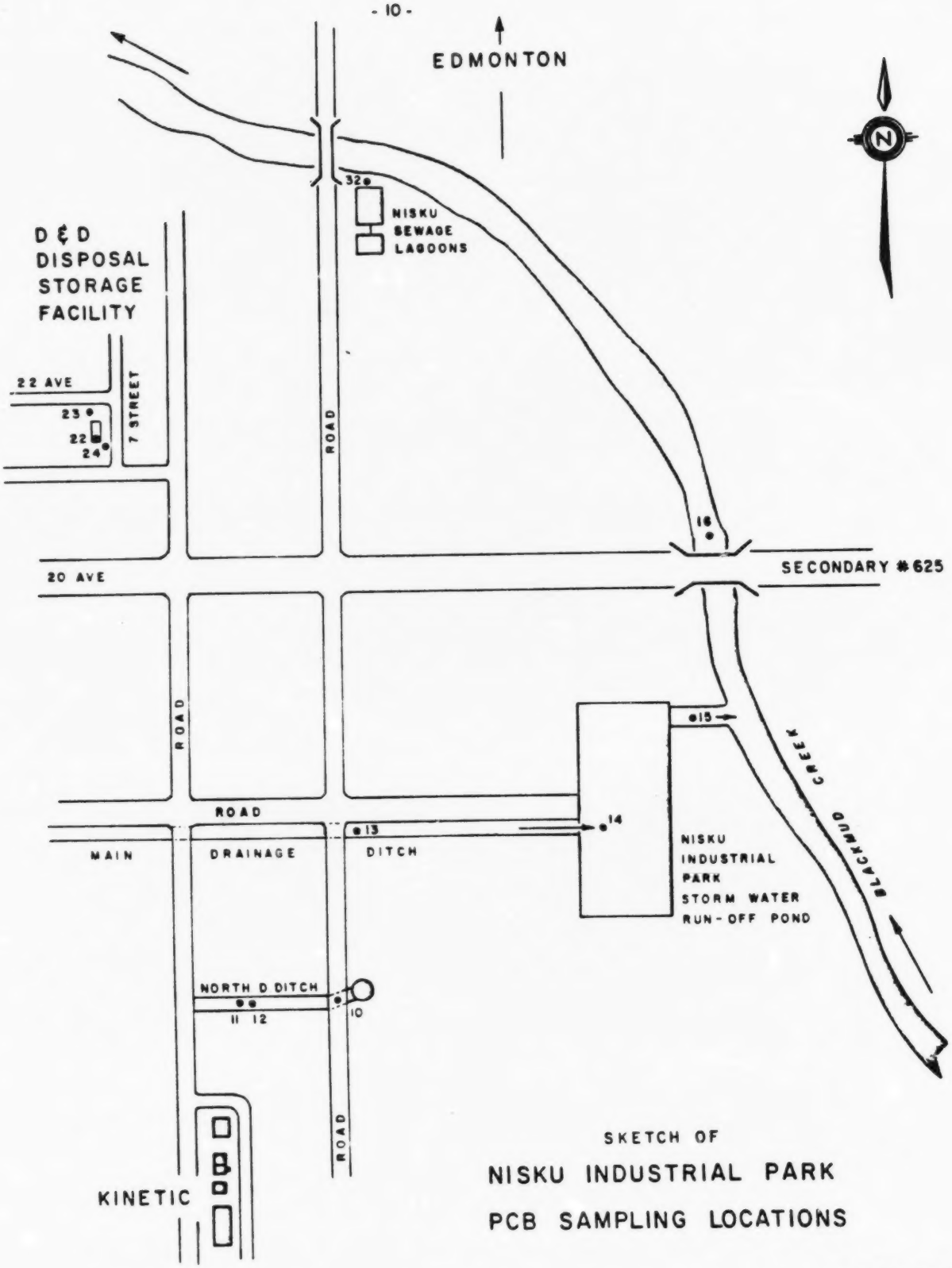
PCB SAMPLING LOCATIONS

KINETIC ECOLOGICAL RESOURCE GROUP (1982) LTD.

NISKU INDUSTRIAL PARK

NOT TO SCALE

Alberta
ENVIRONMENT
Pollution Control Division
Waste Management Branch



SKETCH OF

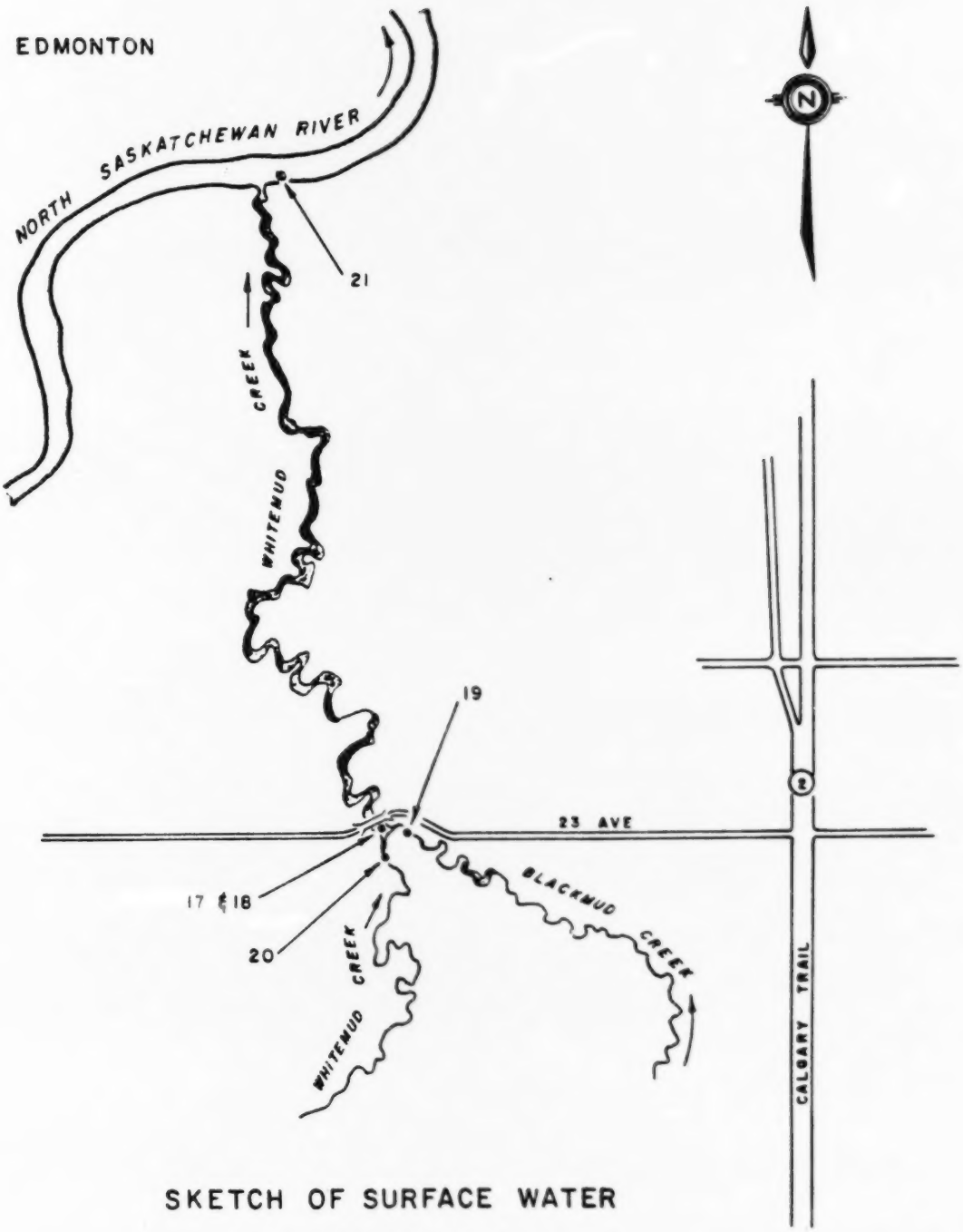
NISKU INDUSTRIAL PARK

PCB SAMPLING LOCATIONS

NOT TO SCALE

FIGURE II

Alberta
ENVIRONMENT
Pollution Control Division
Waste Management Branch



SKETCH OF SURFACE WATER

SAMPLING LOCATIONS

NOT TO SCALE

FIGURE III

Alberta
ENVIRONMENT
Pollution Control Division
Waste Management Branch

APPENDIX I - ENVIRONMENT CANADA REGULATIONS

REGULATIONS PRESCRIBING THE MAXIMUM QUANTITY AND CONCENTRATION OF CHLOROBIPHENYLS THAT MAY BE RELEASED

Short Title

1. These Regulations may be cited as the Chlorobiphenyl Regulations No. 3 (Release).

Interpretation

2. In these Regulations,

"Act" means the Environmental Contaminants Act;

"chlorobiphenyls" means those chlorobiphenyls that have the molecular formula $C_{12}H_{10-n}Cl_n$ in which "n" is greater than 2;

"electrical transformers" includes transformer/rectifier assemblies installed in a common enclosure;

"packaging" means any receptable or enveloping material used to contain or protect goods;

"release" includes spilling, leaking, pumping, spraying, pouring, emitting, emptying, throwing or dumping.

PRESCRIPTION

3(1) Subject to subsection (2), no person shall, after (effective date), in the course of a commercial, manufacturing, or processing activity, wilfully release, or permit the release of, chlorobiphenyls into the environment in Canada in a concentration exceeding 50 parts per million by weight.

(2) A person may release chlorobiphenyls into the environment in Canada in a quantity not exceeding one gram per day if:

(a) the chlorobiphenyls are used in the operation, servicing or maintenance of electrical transformers and associated electrical equipment manufactured in or imported into Canada before July 1, 1980;

(b) the chlorobiphenyls are used in the operation of electrical capacitors manufactured in or imported into Canada before July 1, 1980;

(c) the chlorobiphenyls are used in the operation, servicing or maintenance of electromagnets not used to handle food, feed or anything intended to be added to food or animal feed for any purpose whatsoever, that were designed to use chlorobiphenyls and were in use in Canada before September 1, 1977;

(d) the chlorobiphenyls are used in the operation of heat transfer equipment, hydraulic equipment, and vapour diffusion pumps that were designed to use chlorobiphenyls and were in use in Canada before September 1, 1977;

(e) the chlorobiphenyls are transferred from and into equipment prescribed in paragraphs 2(a), 2(b), 2(c) and 2(d) or from and into packaging;

(f) the equipment prescribed in paragraphs 2(a), 2(b), 2(c) and 2(d) containing chlorobiphenyls or packaging containing chlorobiphenyls is stored or transported; or

(g) the material containing chlorobiphenyls is applied to road surfaces.